by and large has the most polluted atmosphere in the world. General and home air pollutants act upon the population to varying degrees with time of day, weather conditions, and season for 24 hours a day from birth to death. They may even affect the unborn through a transplacental transfer of carcinogens introduced from the maternal organism into the blood of the fetus. The possibility of such lung cancer hazards for man is suggested by the observations made in mice given the pluripotential carcinogen, urethane.

The efforts to ascribe to cigarette smoking the various peculiarities in age aspects shown by lung cancers [redacted] as sole and main factor represents an expedient and convenient oversimplification of a complex situation which is in urgent need of a thorough and critical reappraisal so as to obtain a more rational and balanced solution.

L. Carcinogens in Cigarette Smoke

The growing concern over the growing tide of lung cancers has stimulated an extensive exploration into the etiologic of lung cancer by the chemical analytic and experimental bioassay approaches (Hueper, 1964; 1966; Hueper abd Conway, 1965). While these investigations have included all aspects of this facet of the lung cancer problem, i.e. general air pollutants, occupational factors, medicinal agents, economic poisons, and experimental chemicals, the great majority of these studies has dealt with a search for the carcinogenic factors suspected to be present in tobacco smoke.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

The presence of arsenical pesticide residues in tobacco leaves which were released in cigarette smoke was first incriminated as a cause of the carcinogenicity of cigarette smoke. The arsenic content of American tobacco was as a rule distinctly higher than that found in Balkan tobacco, which therefore was considered for some time as less dangerous than the American variety. After it was found that smokers of cigarettes made of Balkan or Turkish tobacco showed similar statistical associations with lung cancer as those consuming cigarettes manufactured of American or Virginian tobacco, the search for the alleged carcinogenic constituent of cigarette smoke was directed at an analysis for carcinogenic aromatic hydrocarbons, such as those demonstrated in coal tar. These investigations soon showed not only the presence of 3,4-benzpyrene but also of a large number of other carcinogenic and noncarcinogenic aromatic polycyclic hydrocarbons in the cigarette smoke, although in rather minute amounts (Van Duuren; Latarjet et al.; Carruthers; Kiryu and Kuratsune; Hoffmann and Wynder). Of the various carcinogenic polycyclcic aromatic hydrocarbons demonstrated 3,4-benzpyrene was present in larger amounts than anyone of the others. However, it was concluded from the results of experiments on rodents on which cigarette smoke condensates and its various fractions were tested for carcinogenicity, that these carcinogens were not present in sufficient amounts to account for the carcinogenic effects produced. Druckrey thus stated that 3,4-benzpyrene in cigarette smoke condensate could have been responsible for only 0,5 to 1 % of the carcinogenic action displayed by the condensate when injected into rats. Similar conclusions were reached by Lazar et al.; Wynder et al.; Roe; and Kreyberg. Kreyberg flatly claimed that 3,4-benzpyrene was not responsible for the carcinogenic action of cigarette smoke in man.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

Because of these results obtained in bioassays with cigarette condensates, it was concluded that this material might contain some potentiating, promoting or cocarcinogenic factors. The evidence yielded by various experiments suggested that various components of cigarette smoke, such as phenols, polymerized hydrocarbons, naphthalenes might act in such a capacity (Guerin; Kotin; Roe; DiPaolo; Van Duuren; Roe and Salaman; Neukom; Bock et al.; Carruthers). Druckrey et al. proposed that a carcinogenic action of cigarette smoke might by attributable to nitrosamines formed during the combustion. Some recent experimental studies of Roe et al. with nitrosoanabasine seemed to support this supposition. Sundermann demonstrated traces of nickel in cigarette smoke and felt that this metallic carcinogen might account for the carcinogenic action on the lungs of man. Also a hepatocarcinogen for rodents, selenium, found in cigarette paper and entering the smoke stream was incriminated as the chief carcinogenic agent in cigarette smoke. The most recent member on this list is polonium, one of the radioactive components of the air pollutants in uranium ore mines (Sultzer and Hursch). This discovery first reported by Radford and Hunt was confirmed by Rajewski and Stahlhofen. Radford and Hunt contended that the amounts of polonium inhaled and deposited in the bronchial mucosa were adequate to account for the carcinogenic action of cigarette smoke. To judge by the negative outcome of experiments conducted on tobacco alkaloids, especially nicotine, these tobacco constituents do not seem to be involved in the carcinogenic effects associated with the administration of tobacco smoke condensates to animals (Schoental).

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Looking at the list of identified and diverse chemical carcinogens demonstrated in tobacco smoke, it would appear at first glance that such a mixture of potent carcinogens should induce a powerful carcinogenic reaction in the tissues of contact, which perhaps would be comparable to that seen in the lungs of radioactive ore miners as the result of the action of radioactive dust and gases or observed in the bladders of producers of aromatic amines. In both

Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

instances cancerous responses in the lungs and bladders, respectively, occur in the majority of individuals exposed severely. It appears from the statistical data recorded that cigarette smoke is at worst a weak carcinogen, since the percentage of heavy cigarette smokers who develop cancer of the lung varies between 10 to 15 %, provided that all of these cancers or anyone are actually caused by cigarette smoke.

Some comments may be appropriate as to the merits of a claimed carcinogenic action of the individual carcinogens. The principal carcinogenic action of nickel when inhaled for occupational reasons is directed against the nasal sinuses. There is no evidence that cigarette smokers have any unusualy liability to develop a cancer of this site.

While arsenic must be recognized as a respiratory carcinogen when inhaled or ingested, such cancerous reactions when occurring under occupational or dietary conditions are often accompanied by symptomatic anatomic evidence of chronic arsenic poisoning, i.e. arsenic dermatitis, neuritis, arteriopathy, and cancers of the skin and other organs. All these manifestations are as a rule absent in cigarette smokers. An important role of arsenical pesticide residues in cigarette smoke as a cause of lung cancer among smokers therefore appears to be unlikely.

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There is no evidence that selenium exerts a carcinogenic effect upon the lungs. As far as this is known, selenium is a hepatotoxic chemical and has induced cancers of the liver and adenomas of the thyroid only in experimental animals. While the observations of Radford and Hunt present attractive possibilities, especially when applied to carcinogenic potentialities of radioactive exposures of similar magnitude existing for numerous mining populations of non-uranium metal and coal mines in this country and abroad as well as for certain populations living near nuclear installations, there is such a distinct differences in the attack rate of lung cancer reported for radioactive ore miners and cigarette smokers, that it rather improbable that smokers receive

Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

with cigarette smoke an effective radioactive carcinogenic dose. With the evidence on hand,it is not possible to calculate reliable the magnitude of such a dose,although this has been claimed.

The suggestion of Druckrey and others that perhaps nitrosamines in the smoke might significantly be involved in the causation of lung cancers in smokers, presents a real challenge to public health officials charged with guarding the health of general consumers against cancer hazards from food additives and contaminants. There has been published recently some evidence indicating that the addition of nitrates to meats and fish might give rise in the stomach to the formation of nitrosamines of carcinogenic nature. Since it is established through animal experiments that some of these nitrosamines are very powerful carcinogens which in part induce cancer development in the lungs and nasal sinuses,the proposal of Druckrey et al. may have wide implications as to possible sources of exposure to reppiratory carcinogens by the general population quite apart from cigarette smoking.

There exists more than adequate clinical,epidemiological,pathological and chemical evidence establishing the fact that substances containing 3,4-benzpyrene and related chemical carcinogens are responsible for the development of cancers of the skin and of the lung in many thousands of workers exposed to coal tar products and mineral oils. The demonstration of such chemicals in any material obtained by an incomplete combustion of carbonaceous matter,including wood and tobacco,therefore can be accepted as evidence that such material contains human carcinogens,regardless whether 3,4-benzpyrene is considered a human carcinogen. Its presence is always an indicator that other carcinogenic chemicals of related structure exist in the material in which 3,4-benzpyrene is found(Hueper,1966,Hueper and Conway,1965;Hueper,1964),and that such material must be considered as carcinogenic to man.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

Although a great deal of attention has been directed recently toward the presence and action of promoting and cocarcinogenic factors in cigarette smoke, Apart from the fact that the concept of specific cocarcinogens has remained somewhat diffuse and controversial(Hueper and Conway,1964), the demonstration of so-called cocarcinogenic or promoting effects by specific non-carcinogenic chemicals upon the action of specific carcinogenic chemicals has been limited almost exclusively to the cancerization process induced in the skin of experimental animals. There is little evidence,if any,on hand indicating that such interactions between carcinogens and cocarcinogens occur also in the respiratory organs or any other organ,although some investigators favor this view. Although the Surgeon General of the U.S.Public Health Service recently has advanced such an interaction between radioactive chemicals and cigarette smoke,the latter being charged with an accentuating cocarcinogenic action,there is actually no factual observation available supporting such a contention or speculation. In fact, radioactive chemicals are the only known universal carcinogens (in all species so far tested) which surely do not need such a crutch for accounting for their carcinogenic effects on the lungs of radioactive ore miners.

Surveying the evidence on the presence and types of carcinogenic chemicals in cigarette smoke,it is evident that most of them are recognized human carcinogens(polycyclic aromatic hydrocarbons,arsenic,nickel,polonium), while others (nitrosamines,selenium) are potential human carcinogens. All of them seem to occur in relatively minute amounts,which may preclude the possibility that each one by itself may not be capable of inducing lung cancers in any significant percentage of the individuals exposed. Whether they are capable of having such an effect by cumulative,additive,and potentiating action when combined is at present unknown and any conclusion therefore remains speculative,although worth investigating.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

There can be no doubt that carcinogens inhaled with cigarette smoke would intensify the effect of the same or related chemical carcinogens inhaled from other sources and for other reasons(general atmospheric pollatnts,occupational contacts).Cigarette smoking therefore may have an aggravating effect upon the lung cancer liability of individuals thus exposed. The total evidence recorded and evaluated for its significance in the causation of lung cancers in man and their alarming increase in recent decades suggests that this influence of cigarette smoking has not been overwhelming but rather has remained within moderate limits. It nevertheless must be regarded as a factor deserving serious attention from public health agencies,legislatures, medical profession and industry,since cigarette smoking risks are amenable to practically feasible control measures which should be applied wherever possible.

In distinct contrast to the important uncertainties concerning the nature, action and interaction of the various carcinogenic chemicals found in cigarette smoke in their relation to lungecancer risks,adequate information exists as to the various chemicals responsible for the recognized occupational lung cancers (Hueper,1966),to permit the development and legal adoption of suitable technological,sanitary and medical prophylactic and preventive control measures and workmen's compensation procedures for at least some of them in some of the countries concerned with such pulmonary cancer hazards existing in some of the industries concerned.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

IV. Prevention of Environmental Lung Cancers

If a critical appraisal is made of the past efforts at the preventive and prophylactic control of lung cancer hazards of recognized and suspected nature made during the past two decades by governmental, industrial and private parties rightfully concerned with such matters, it becomes readily obvious that all activities in this field of cancer control, public health, industrial hygiene, and public relations have been slanted to an extraordinary degree toward the limited area of lung cancer hazards allegedly related to cigarette smoking. While a great deal of work and money has been expended during this period also on studying urban air pollution and its possible effects on human health, lung cancer control has derived relatively little benefit from these efforts, because of the negativistic attitude of the U.S. Public Health Service concerning the importance of general and occupational air pollutants as a cause of human lung cancers as well as of other chronic pulmonary diseases, such as chronic chemical bronchitis and pneumonitis and emphysema.

It cannot be said that organized American medicine has exhibited any intense interest in such endeavours either. In a poll of about 1,400 physicians on the importance of cancer control by Samp, the following ratings were given to the possibility of effective preventive measures against cancer risks from a number of occupational and environmental carcinogenic agents:

	Ratings					No
	4	3	2	1	0	opinion
Isolation, enclosure, or sealing off areas where aniline dyes, chromate vapors, or asbestos dust are present	754	287	69	92	82	17
Control or restriction of therapeutic drugs with suspected carcinogenic action (arsenicals, hormones, etc.)	495	202	237	259	101	17
Elimination of or protection against every day carcinogens (dusts from asphalt, and tar roads, truck exhaust, food additives	477	197	334	244	37	12

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

	Ratings 4	3	2	1	0	No opinion
Avoidance of tobacco in all forms	401	303	282	282	34	0
Avoidance of skin contact with tar and petroleum products	513	53	321	239	166	9
Cleaning up of city atmosphere	436	162	148	0	555	0
Avoidance of overexposue to,or protect from,excessive sun	355	188	192	241	323	0

Ratings: 4-definite possibility;3-very likely;2-probable;1-possible;
0-no value

Samp expressed wonder about the low rating which certain cancer prevention measures received. A measure against tobacco,thus,listed in 26th place of the 40 means considered. The avoidance of excessive exposure to sun light was placed among the last 10 measures,although in Wisconsin,where this poll was conducted,the majority of skin cancers are found in farmers, Great Lakes sailors,and other outdoor types. Based on an estimated 500,000 cases of cancer in U.S.A. a reduction of cancers by 5 % should mean 20,000 to 25,000 fewer cases per year(Samp).

Three years later,in 1965,the that time president of the American Medical Association ventured the opinion before the Subcommittee on Manpower of the President's Commission on Heart Disease,Cancer and Stroke: "Claims that cancer and heart disease are capable of being prevented or cured at this time are misleading and tend to substitute emotional judgment for factual understanding". A similar negativistic opinion was expressed at this time in an editorial of the Journal of the American Medical Association. When the attention of the editor of this publication was called to the stark incorrect nature of such a statement,he declined to publish corrective facts on the matter.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

With this rather lukewarm attitude of the medical profession toward an active and intensified application of preventive measures to occupational and industry-related general environmental cancer hazards, including those affecting the lung, and the categorical declaration of the Surgeon General of the U.S. Public Health Service that cigarette smoking represent the predominant cause of lung cancer, the real responsibility for any preventive efforts through a control of cigarette consumption was shifted upon the individual who was chosing to smoke. The principal educational propaganda effort therefore was directed toward the consumer seeks to persuade him or her to stop smoking. It was officially proclaimed that "cigarette smoking is hazardous to human health. It is a flat scientific fact. Establishing it and demonstrating it is no longer our goal (Williams)". "To-day, it is evident that a substantial majority of the people have been exposed to the scientific evidence and have accepted it". He omitted to note at this occasion that several years prior at a much smaller official meeting at which only the four principal chemical carcinogenesis experts of the National Cancer Institute were present, a similar unanimity was voiced, only it expressed itself in serious doubts that cigarette smoking was the principal cause of lung cancer. Although these scientists had in their field a recognized international reputation, the Public Health Service did not deem it expedient to make use of these judgments in its propagandistic campaign to persuade the American public to accept the claim that the alarming (cause of the) increase of lung cancers had successfully been ascertained. It seems from demands made at the international conference dealing with this problem and sponsored by the PHS in 1967 that some supporters of the cigarette theory have become imbued with a fervor which reminds of a state of mind met with during past prohibition days (MacDonald) and during times of war: " Unity among doctors on the cigarette issue is vital" (Overholt).

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A similar one-sided promotion of the cigarette etiology of lung cancer with neglect of other recognized and important causes of this disease was practized for many years by the American Cancer Society, which culminated at one occasion at a symposium on lung cancer sponsored by this organization in an unanimous vote in support of this concept by the simple artifice of excluding from this meeting all those scientists who had opposed this concept at a previous conference.

There can be no objection against the statement that excessive smoking of cigarettes carried out over long periods of time might damage health and that manifestations of such injury may become localized in the lungs and may be manifestated with the development of functional and anatomic abnormalities in this organ. It may also be admitted that such practices may contribute to the development of bronchogenic carcinoma in some persons, while not excluded although it is still unproven, that cigarette smoking by itself may induce such effects. In all these respects cigarette smoking carried out under unrestrained circumstances does not differ from other human activities followed to excess and sometimes without any utilitarian purpose, such as drinking alcoholic beverages, but mainly for reasons of personal enjoyment and satisfaction. Such activities belong to the personal domain as long as they donot become for some reason a matter of public concern and consequently an object of regulatory measures. Such policing procedures, for restraining consumption of alcoholic beverages have been applied to alcohol trades for many years because acute and chronic alcoholism favors unruly, irresponsible behaviour, tendency toward criminal and immoral acts, economic and mental deterioration and the development of various diseases, including several cancers (esophagus, liver). The most extensive and radical control measures that were ever adopted against alcoholic trades for the protection of the general public through legislative action were taken during the prohibition era when severe restriction were applied to the production of alcohol and alcoholic beverages. This era lasted from about 1917 to 1933, because this enforcement

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of the restrictive laws had become highly expensive and ineffective, and the motives behind the laws had lost favor among the population because of the wave of black marketeering activities and of gangsters which had followed the introduction of prohibition.

These experiences are cited because some fanatical supporters have called for a similar measure in regard to controlling health hazards related allegedly to the habit of cigarette smoking. The former California State Health Commissioner, Dr. Breslow, has demanded that the American cigarette industry should be phased out, he believes, that only through such a measure an effective stop can be put to the growing loss of life caused in his opinion by cigarette smoking. This judgement is based on the declaration by the U.S. Public Health SService that in 1964, 37 % of all disease deaths in the United States were caused by diseases connected with smoking, and that the following diseases are linked to cigarette smoking: Cancer of the lung, larynx, and lip, and chronic bronchitis having causal relations; arteriosclerotic heart disease including coronary artery disease, cirrhosis of the liver, emphysema, stomach ulcers and cancer of the esophagus, the mouth other than the lip, the bladder and other urinary organs being associated with, but not clearly related to smoking.

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As in the case of lung cancer also the other claims concerning a predominant causal relation of cigarette smoking to the various other diseases are based almost entirely on statistical evidence, and therefore lack adequate factual confirmation by clinical, epidemiologic and experimental data. The allegation that cancerssof the lip, usually affecting the lower lip, are mainly due to cigarette smoking neglects entirely the fact that adequate clinical and epidemiologic evidence exists incriminating an undue exposure to solar radiation for their causation, i.e. they belong to the well established group of solar cancers of the skin, found in outdoor workers and individuals living in a hot and dry climate. The claim that esophageal can-

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Table 48

Crude Death Rates per 100,000 for Deaths from Arteriosclerotic Heart Disease and from Cancer of the Lung in Selected States

State	Heart Disease Deaths(1950)	Lung Cancer Deaths(1948)
Connecticut	288.6	11.1
Massachusetts	298.2	10.2
New York	322.5	11.9
Illinois	236.2	8.2
New Hampshire	316.0	10.1
Alabama	130.4	5.1
New Mexico	85.4	3.0
Wyoming	135.6	3.9
South Carolina	118.8	3.7
North Dakota	168.2	4.1

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Table 47

Morbidity Ratio of Peptic Ulcers in Great Britain According to Occupations

(F. A. Jones)

Occupation	Morbidity Ratio (Standard - 100)
Physicians	217
Business Executives, directors	155
Foremen	137
Engineers, electrical, semi-skilled	112
Social class IV and V	105
Lorry drivers	95
Bus drivers	94
Laborers, porters	94
Social class III	93
Civil servants, clerks	81
Social class I and II	69
Agricultural workers	41

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cers are manifestations of the cigarette disease complex is not accepted by Doll, who is quite emphatic in maintaining that these cancers are related to the consumption of alcoholic beverages since they are frequent in England in persons connected with the liquor and restaurant trades. The extensive experiences collected in regard to causal relation of bladder cancers to aromatic amines and the lack of agreement between lung cancer rates and bladder cancer rates in many American communities have apparently escaped the attention of the supporters of the cigarette theory (Hueper, 1962). There is since many years an extraordinarily high incidence of peptic ulcer for which a cigarette etiology is scarcely conceivable in view of the very low incidence of lung cancers in Japan and the relation of peptic ulcers to certain occupations in Britain. The very comprehensive studies of Hueper on the causation of arteriosclerosis and its relation to diet, drugs, occupational activities and lung cancer rates also do not support any sweeping allegations as to the predominant role of smoking in the development of such vascular changes (Hueper, 1945). Tables 47 - 48 Substantial evidence reviewed at another occasion (Hueper, 1966) supports the view that climatic and occupational factors play an important role in controlling incidence rates of chronic bronchitis in different countries (England) and population groups quite unrelated to cigarette smoking. These few citations may suffice to indicate that the scientific merits of the rest of the claims implicating cigarette smoking as the predominant cause of a host of diverse diseases and of some 300,000 annual excess deaths in the United States are as debatable as those advanced in favor of such correlations concerning lung cancers.

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When planning a balanced and rational, program of lung cancer prevention with special references to the role which cigarette smoking may occupy in such an endeavour, the controversial nature of the "cigarette disease complex" theory as it pertains to lung cancer hazards must be given proper and critical consideration. There can not be any sound objection against placing on the cover of cigarette packages a warning reading " Excessive

Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

smoking can cuase transitory and permanent injury to health". It would be fair,however, to adopt a similar warning to be placed on the labels of a number of other consumer goods,such as especially bottles containing hard liquor,because an excessive consumption of such materials does carry similar health hazards and deserves therefore equal regulatory attention.

There cannot be any reasonable objection against placing on the covers of cigarette packages also a note stating the nicotine and tar contents obtained when cigarettes of a particular brand are subjected to standardized conditions of burning comparable to those prevailing ordinarily when such cigarettes are smoked by human customers. Since Wynder has shown that the amount of carcinogenic hydrocarbons produced from cigarette tobacco is rather low when the burning temperature stays under 700°C and increases only considerably when it surpasses 800°C, and consideraing that the burning temperature inside of a cigarette depends upon the quality of the puff as well as on the compactness of the tobacco in the cigarette,references to the amount of tar generated by a cigarette of a particular brand has only a limited significance as far as judging the degree of potential carcinogenic risks is involved. It is moreover most dubious whether such a conclusion can justly bedrawn from a references to the tar content,because the actual nature of the agents statistically associated with cigarette smoking and lung cancer is still not established and thus may not be reflected in a statement to the tar content.

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A note on thenicotine content of the tobacco used in a cigarette seems to be more justifiable and rational,since nicotine is a recognized alkaloid exerting a distinct effect upon the vascular and hormonal organs,especially the adrenal(Hueper,1943;1945). Such a references may also stimulate commercial users of tobacco to persuade tobacco farmers to grow types of tobacco with a naturally low nicotine content(Chemical Laboratory, J.A.M.A.,1953).

Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

The existence of distinct differences in the nicotine content of cigarettes of 56 different brands as demonstrated in the smoke passing through cigarettes with and without filters recently reported by Moore et al. seems to provide an adequate reason for trying to overcome such problems by other methods than filters. Although the results reported by Moore et al. may have some methodological shortcomings especially causing distorsions in quantitative respects, they show nevertheless that nicotine passes the various filters in use in different brands to varying degrees (Kershbaum, et al.).

Without any doubt the use of filters consisting of varying adsorptive materials often reduces the tar content of the smoke passing through the butt end and some aromatic hydrocarbons present in the smoke will be retained by the filter material which is identical in many respects with the adsorptive chemicals employed extensively by chemists for fractionation of combustion and distillation products of coal, mineral oils, soots, and similar matter, in large adsorption columns for isolating and identifying various polycyclic aromatic components, such as especially those with carcinogenic properties (Kuratsune and Hueper; Falk and Kuratsune). Since all filter materials employed have an adsorptive action of limited selectivity and because their adsorptive retention effect is not only partial but depends also on the vigor of the air current sucked through the filter, a part of the tarry matter is bound to penetrate the filter during the smoking process (Takemoto and Moriguchi). Filters therefore can offer at best only partial protection against any action of suspected carcinogens present in the smoke. The degree of protection achieved by the various filters cannot be judged fairly as long as the nature of the suspected carcinogenic chemicals in the smoke is undertain and the degree of their relative carcinogenic effectiveness is unknown.

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Source: https://www.industrydocuments.ucsf.edu/docs/yzyk0000

It is not likely that the results of animal bioassays performed on condensates of filtered cigarette smoke may yield reliable and meaningful information concerning potential humcer hazards to the lungs of human smokers. Filter cigarettes, while reducing to some extent objectionable matter in the smoke, they offer only a limited degree of protection against whatever health hazards are associated with excessive cigarette smoking.

Considering the rather complex nature of the data on the tar and nicotine content of cigarettes and on the relative effectiveness of different filters and realizing the distinct difficulties for the general smoker to interpret intelligently the actual significance of such information in terms of potential health hazards, it is rather doubtful whether such data are benefitting the consumer to a degree as this is often implied by supporters of the cigarette theory (Diehl). Their usefullness as a reliable preventive measure is doubtful and their incorrect interpretation may have a deceptive effect.

Producers of alcoholic beverages have long time ceased and desisted of publicly maintaining that their goods when consumed in excessive amounts do not ravage health and life to a deplorable degree. Even beer is not anymore considered "liquid bread". The advertisements of this industry are preferring to recommend its products mainly for sheer enjoyment. It seems that the time is ripe for the cigarette industry to adopt a similar attitude in its advertisement efforts, and to stop maintaining that excessive cigarette smoking does not induce various injurious effects upon human health. The present controversy on this subject relates mainly to its quantitative and to some extent also qualitative aspects, but does not concern the existence of health hazards from excessive cigarette smoking.

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Limited and reasonable regulatory measures concerning the type and extent of printed and other visual advertisement should find serious consideration by both the industry as well as governmental agencies. It is advisable that in the interest of public health and individual safety the widely practized "seductive" type of advertisement having especially appealing to the young be restricted and tuned down, so as to preserve the enjoyment of cigarette smoking to those who are capable of indulging it to reasonable and moderate degrees. Such a policy appears under the circumstances wise and desirable and would counteract the present horror propaganda conducted by some governmental and private organizations without proper regard to facts and realities in existing human relations, and reactions, which might lead through public and political pressure to the adoption of abusive and impractical regulatory laws.

The tobacco industry as well as the liquor industry may also do well to face the prospect of a likely future marked curtailment in the the availability of some of their essential raw products, since the rapidly growing population and its need for foodstuffs may require a marked reduction in the present acreage used for the growing of grains, hop and tobacco plants. The presently spreading use of menthol as a cooling and flavoring agent in cigarettes favoring the replacement of the original tobacco flavor by a foreign flavor and the acceptance of such products by many consumers may perhaps make it easier for the industry to develop a cigarette with less drawbacks than the one in present use.

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